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2015 Mobile Network Modeling Workshop

Tuesday, March 17, 2015	
0730 - 0900	*Registration & Continental Breakfast*
0900 - 0930	Welcome - Adamson, et. al.
0930 - 1200	**Technical Presentations: *Emulation Experimentation Activities***
0930 - 1000	Poland: AFRL/EMANE Activity Review
1000 - 1030	St-Onge, Hugg, & Wiggins: *Progress Report*
1030 - 1100	*[Break]*
1100 - 1130	Hung: *IPHC Evaluation Results*
1130 - 1200	Hunter: *CBMEN Test & Evaluation*
1200 - 1300	*[Lunch]*
1300 - 1700	**Technical Presentations: *Modeling System Updates***
1300 - 1330	Galgano: *TestPoint Framework*
1330 - 1400	Santiago: *What's New with CORE*
1430 - 1500	Shurbanov: *Porting OpNet Shared Code Model of WNaN to EMANE*
1500 - 1530	*[Break]*
1530 - 1600	Short & Anderson: *LXC/EMANE Integration*
1600 - 1630	Wang: *EMANE-RFNest Tool Integration*
1630 - 1700	Closing Remarks

Wednesday, March 18, 2015	
0730 - 0900	[*Continental Breakfast*]
0900 - 1200	**Technical Presentations: *Experiment Management, Testing and Analysis***
0900 - 0930	Marcus, Touma & Bergamaschi: *Experimentation Management: ITA/CTA Experimentation Facility Using An ARL DAVC v2.0 Cloud Layer*
0930 - 1000	Henz: *Emulating High-Throughput Wireless Links and Parallel Data Analysis*
1000 - 1030	Macker: *MGEN Orchestration using ZeroRPC*
1030 - 1100	*]Break]*
1100 - 1130	*<TBD>*
1130 - 1200	*<TBD>*
1200 - 1300	*[Lunch]*
1300 - 1700	Track 1: NS-3 Training Track 2: CORE Deep Dive

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Thursday, March 19, 2015	
0730 - 0900	*[Continental Breakfast]*
0900 - 1200	Track 1: NS-3 Training Track 2: EMANE Control & Monitoring Deep Dive
1200 - 1300	*[Lunch]*
1300 - 1700	NS-3 Training

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Abstracts

Brendon Poland: An overview of AFRL activities and some background on current and future work with respect to EMANE.

Marc St-Onge, Hugg, & Wiggins: Progress Report

Hung: *IPHC Evaluation Results*

Andrew Hunter: *CBMEN Test & Evaluation*

Steve Galgano: TestPoint Framework

Santiago: *What's New With CORE*

Vlad Shurbanov: *Porting OpNet Shared Code Model of WNaN to EMANE*

Short & Anderson: *LXC/EMANE Integration*

LXC automation for integration with the EMANE infrastructure. This work automates the generation and management of freestanding containers which can be used to host radios which required an autonomous platform from the host machine. This work stemmed from integrating SRW with EMANE in a more fluid manner. We also have work related to generating these freestanding machines in Core to enable the implementation of radios not compliant to the built in EMANE LXC structure.

Sherry Wang: *Your Title Here*

Intelligent Automation, Inc. (IAI) has several ongoing efforts including developing EMANE-integrated RF emulation tools and automatically converting radio models. The latest generation of IAI's RFnest™ technology was recently validated with a number of DoD radios. The system was demonstrated to address a range of wireless network evaluation needs using both real radios and EMANE/CORE-emulated radios. The RFnest software allows scenarios to be defined including realistic kinematic mobility modeling and channel modeling. The software also allows metric capture, status monitoring, record/replay, and visualization of the scenario. The software can drive an EMANE-based emulation/simulation, IAI's RFnest hardware connected to real radios or both simultaneously. This allows the creation of high-fidelity, repeatable, and low-cost scenarios using a heterogeneous network of real wireless radios sending RF signals which experience a controllable and realistic channel impulse response and correct interference, as well as simulated radios with RF and radio models running in EMANE. RFnest can be used for protocol testing, EW testing, replaying field tests, and model validation. IAI also recently demonstrated an automated tool for converting radio models from both QualNet and OPNET to ns-3. The automated conversion of an 802.11 QualNet model to ns-3 and of the WNaN OPNET model to ns-3 have been completed and validated.

Kelvin Marcus, Maroun Touma & Flavio Bergamaschi: *Experimentation Management: ITA/CTA Experimentation Facility Using An ARL DAVC v2.0 Cloud Layer*

The Army Research Lab and IBM-US have partnered to address the challenges of asset and experimentation sharing in collaborative multi-genre network science experimentation. ARL has continued

to enhance their Dynamically Allocated Virtual Clustering Management System (DAVC), an experimentation infrastructure that dynamically creates, deploys, and manages virtual clusters of heterogeneous nodes within a cloud environment. Building upon the previous ARL and IBM-UK collaboration to develop the ITA Experimentation Framework, IBM-US has developed the ITA/CTA Experimentation Facility, a collaborative environment designed for sharing experiments, demos, assets and services amongst a research community. The Experimentation Facility is rich in functionality allowing researchers to upload new experiments, demos, assets and services, as well as compose new experiments from existing ones. It can interface with several virtualization services including the DAVC which has an API for inter-operability that allows third party applications to deploy complex network experimentation clusters. In this talk we will present the architecture of each of the components (i.e. DAVC, ITA/CTA Experimentation Facility and ITA Experimentation Framework) and also how they integrate to form a collaborative environment for experimentation.

Brian Henz: *Emulating high Throughput Wireless Links and Parallel Data Analysis*

[Keep in mornings]
